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Examining engagement with an online toolkit for academic writing in blended-learning initial teacher education programmes

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Abstract

The Academic Writing Toolkit was developed by Hibernia College in 2017 in response to feedback from both faculty and students of the College's Primary and Post-Primary ITE masters programmes. This feedback indicated a need for guidance and instruction on academic writing that was both student-teacher focused and distance-learner focused. Designed for asynchronous online delivery, the Toolkit covers standard academic-writing skills such as referencing, grammar, formatting and style. It also provides tailored guidance on reflective writing, assessment writing and dissertation writing from teacher education experts. Such writing practices form a crucial component of teacher formation by fostering skills in reflective practice and critical thinking (Day, 1999; Whitehead, 2000) as well as supporting the development of teacher self-identity as practitioner-researchers (Stenhouse, 1975; Argyris & Schön, 1976). This paper summarises the theory and principles guiding the Toolkit's design and draws on a study of quantitative and qualitative data to obtain insight into students' usage patterns and their experience of the Toolkit. The study focused on Primary and Post-primary programme cohorts (n=315) and used data derived from a combination of user logs, online surveys (n=52) and student records. Ethical approval for this research was obtained from the College's Research Ethics Committee. Among the findings from the study were strong preferences expressed by students for instructional modalities that enhance the sense of teaching presence in online content (Garrison et al., 2000) and a scheduling approach that recognises the patterns and workload of distance-learning students.

Keywords: academic writing, online, toolkit, learning analytics, initial teacher education, blended learning, distance learning, inclusiveness, reflection, identity, teacher as researcher, teaching presence

1. Introduction

The ability to write academically is a key skill for students in higher education. In addition to being a pivotal tool for assessment (Lillis, 2001), the skill helps students to understand and construct subject-based knowledge (Wingate, 2006). However, it is only relatively recently that explicit instruction in academic writing has been identified as an urgent need in higher education institutions, as a response to the widening of access to third-level education and the varying levels of writing skills students bring with them (Wingate, 2012) as well as increasing cross-disciplinarity (Coffin & Hewings, 2003). In the specific context of initial teacher education (ITE) at postgraduate level, professionals who choose to retrain as teachers may be 'crossing over' from a scientific discipline to a humanities-based one and therefore lack the experience of writing discursive academic papers. The decision to retrain as a teacher may also be taken several years after leaving education; even students from humanities backgrounds may struggle with academic writing if they have not written academically in some time. The challenge for Hibernia College, which provides masters programmes in teacher education via online blended learning, is how to use distance-learning methods to improve academic writing skills – particularly given that many of its students are studying part-time and balancing busy lives with an already demanding and time-consuming academic programme. While academic writing instruction cannot be

separated from subject content and learning (Wingate, 2006) and needs to be threaded throughout the curriculum, a recent review of the literature by Scott et al. (2017) highlights the increasing prevalence of defined academic writing supports in blended-learning environments. Nallaya & Kehrwal (2013) suggest that online resources – particularly step-by-step directions, models and examples – support the development of students' academic literacies in a way that is easily accessible and allows revisiting of content multiple times throughout their studies. Similarly, a study by Tuomainen (2016) of student reception of a blended-learning academic writing course highlights “convenience, flexibility and greater allowances for individual time management” as benefits of the online approach. From a pedagogical perspective, the availability of on-demand academic writing resources that can be accessed over time may even be more valuable to students than similar instruction scheduled early on in their studies; Chanok et al. (2009) concluded that writing skills instruction is more useful for students after they have received feedback on their first essays, when they were better able to understand the specific writing issues they needed to address. Online resources, however, should not be relied upon exclusively; Scott et al. (2017) highlight the need for face-to-face interactions to offer feedback and reassurance, as well as careful consideration of the technologies used for delivering writing instruction online.

1.1 Toolkit design

In addition to covering the ‘technical’ areas of academic writing – such as referencing, grammar, formatting and style – the Toolkit aims to provide discipline-specific guidance on the ethos and nature of academic writing, as well as tailored guidance on reflective writing, assessment writing and dissertation writing from teacher-education experts. Such writing practices form a crucial component of teacher formation by fostering skills in reflective practice and critical thinking (Day, 1999; Whitehead, 2000). Linked to this remit, and a key driver of the design of the Toolkit, was the concept of *teaching presence*. In their Community of Inquiry model, Garrison et al. (2000) identify teaching presence as “the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile outcomes”. In the digital context, this process begins during instructional design and is manifest in the pedagogical and technological choices made during course development. A key requirement of the Toolkit was to harness the expertise of the College's academic staff in writing academically and, importantly, their wealth of knowledge and experience in doing so as teachers and educators. An important aim in constructing the Toolkit, therefore, was to impart to students this sense of teacher identity – the teacher as not only a practitioner but as a researcher (Stenhouse, 1975; Argyris & Schön, 1976) – through and alongside the provision of accessible academic writing instruction.

From the perspective of student experience, a crucial principle governing the Toolkit's content was that it should be ‘bite-sized’ in structure – no more than 20 units, and each unit should take no longer than 20 minutes to complete. This brevity and conciseness of design would, it was hoped, encourage students to use the Toolkit and not feel daunted by it. The name ‘Toolkit’ was deliberately chosen to emphasise the resource's utility and helpfulness, as something that students could visit repeatedly for what they need and find it without difficulty. The learning design of the Toolkit aligned with this principle by using a variety of technology-enhanced learning modalities to accommodate diverse learner preferences, situations and device usage. In keeping with the principle of enhancing teaching presence, the Toolkit featured video and podcast interviews with academic staff; Balzotti & McCool (2016) suggest that the video format, in particular, increases the motivation of students to learn when a friendly conversation style is employed.

Because of how it was envisaged to be used, the Toolkit required a different learning-design approach to the programme's core online instructional components. Unlike other online modules taken by students, the Toolkit

is a non-compulsory, supplementary resource that students are pointed towards and encouraged to engage with as needed throughout their studies. As such, it was necessary to embrace asynchronous delivery and exclude quasi-synchronous approaches such as the “chunking model” (Harris & Greer, 2016). This means that collaborative-learning activities such as discussion forums, for example, would not be effective as students would log in to the Toolkit at different times and for different purposes. However, this limitation was mitigated by the fact that, during their orientation, students participate in an introductory webinar on academic writing and, later, a comprehensive research-methods module featuring discussion forums and webinars where aspects of their writing and research practices can be discussed collaboratively. The eventual design of the Toolkit successfully incorporated several features recommended by Lowenthal & Parscal (2008) as ways of incorporating social and teaching presence in online environments: student and teacher profiles, audio and video activities, reflective questions to foster critical thinking, and self-assessment opportunities. The graph in Fig. 1 gives an overview of the Toolkit's structure in terms of activity type and number.

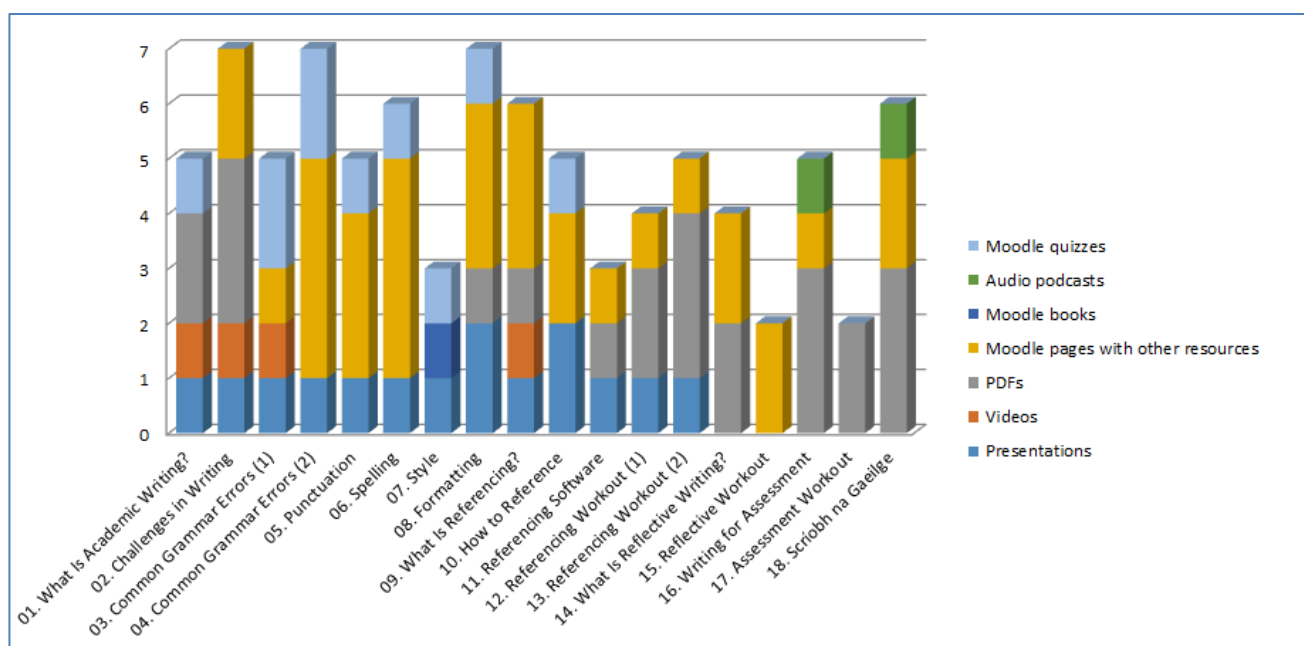


Figure 1: Activity structure of the Academic Writing Toolkit

The purpose of this study is to explore how the Toolkit was used and experienced by students during the first five months of their programme, from April through August 2017. The overarching question that can be answered by the survey data is: What do students think of the Toolkit? In examining online engagement via learning analytics, a potentially useful approach is to begin with overall activity data and then drill down into the kind of active learning tasks that are generally regarded as predictive of overall engagement – in this case, quizzes (O'Dowd, 2018). In doing this, the study aims to answer these two questions:

- i. Does Toolkit activity in the first five months indicate that students might return to the Toolkit over time?
- ii. Is there a relationship between quiz re-attempts and overall online engagement?

2. Methods and design of the study

The population for this study comprised all students enrolled in the two programmes that began in the College in April 2017. This cohort comprised a total of 315 students: 70 in the Post-Primary programme and 245 in the Primary programme. Although the Toolkit is not a compulsory module, all students in this cohort were asked

to complete it as part of their student orientation module at the start of their academic programmes. The data for the study was derived from two sources: activity and completion logs from the Moodle VLE and an anonymised, voluntary post-module survey conducted online. Analysis of VLE activity logs provides a range of proxy measurements of student engagement with course content: time spent logged in, downloads, patterns of use, contributions to activities, and scores achieved in graded activities. The challenge with such data is in its interpretation and in how to use it to improve learning, a need that is driving the growing field of learning analytics (Rienties et al., 2016; Ferguson & Clow, 2017). The VLE data in this study is first analysed to draw some inferences from students' (n=315) online interaction with the Toolkit resources over the first five months, particularly with a view to ascertaining if there is evidence of repeated, formative engagement. An inferential analysis explores whether there is a relationship between levels of student engagement with the content of the Toolkit, expressed as the number of online events logged in the VLE, and the extent to which students interact with Toolkit quizzes formatively as an iterative learning tool. The survey results will also be analysed to identify salient patterns and themes in students' responses and, it is hoped, give some additional insight into the analytics data findings.

2.1 Ethics

Ethical approval for this research was obtained from the College's Research Ethics Committee, and the research was conducted within the parameters of the College's research ethics guidelines, which align with those of the British Educational Research Association (BERA, 2018). With regard to participant consent, all students enrolling on Hibernia College programmes sign a Data Protection Statement as part of their registration. As the purpose of this research was to improve the design of online content, it is covered by the College's specification of "aggregate or anonymised information gathered [and] used/published to feed back into internal academic research [...] and overall programme enhancements including programme design, content, delivery and validation" (Hibernia College, 2018). Participant consent was thus obtained for the use of secondary data through the students' signing of this form. Moodle VLE is a fully secured online learning environment that adheres to international data protection standards. All data from the VLE and the online survey have been subject to a stringent anonymisation process in the first instance, ensuring that no personal information is retained or discernible. The survey was completely anonymous and conducted outside of the VLE to ensure the impossibility of linking responses to student IDs. Students were informed, on the survey home page, that participation or non-participation in the survey would have no effect on their academic progression, grades or records. They were also informed that the data generated would be used to improve the quality of the Toolkit and that, while data may be used in published reports and papers examining aspects of online delivery, this would always relate to trends and patterns at the cohort level only and personal information would never be included. In addition, students were informed that survey participation was entirely voluntary and they could exit the survey at any time. The data for this study will be stored on a password-protected securely-stored external drive in compliance with ethical and legal data-protection requirements.

3. Analysis

- i. *Does Toolkit activity in the first five months indicate that students might return to the Toolkit over time?*

The activity data graphed in Figure 2, below, shows that, although logged student use events for the Toolkit are far more frequent during the first two weeks of release than thereafter, there are occasional peaks of use

in later months – for example, at the beginning of May, end of June and middle of July, all of which correlate directly to release dates of module assignments. Use events, in this instance, capture student activities such as viewing a page or activity, clicking on an activity link, attempting a quiz and submitting a quiz attempt.

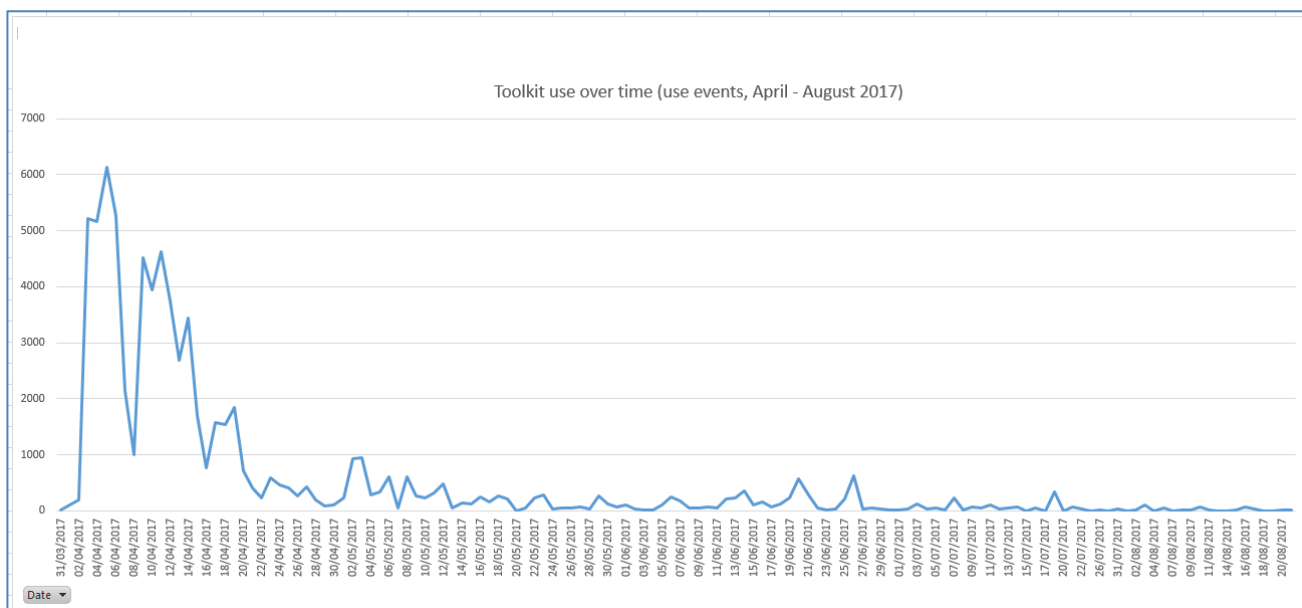


Figure 2: Toolkit use events from April through August 2017

Overall, it appears that interaction with Toolkit activities decreases considerably after orientation, with small numbers of use events in evidence thereafter.

ii. *Is there a relationship between quiz re-attempts and overall online engagement?*

A Pearson correlation test was used to determine if there is a relationship between the number of times quizzes were re-attempted and the degree of engagement with other (non-quiz) activities in the Toolkit. This test involved 201 participants, a subset that had both engaged with the VLE non-quiz activities and completed one or more quizzes. Table 1 summarises the descriptive statistics for the two variables to be correlated.

Table 1: Descriptive statistics for quiz re-attempts and overall online engagement variables

Variable	Min.	Max.	Mean	Standard deviation
Quiz re-attempts	0	8	1.488	2.3497
Online engagement	0	733	264.846	174.247

A moderately positive correlation was found in relation to the number of quiz re-attempts and the number of interactions with non-quiz activities, and the correlation was found to be statistically significant ($p < 0.0001$, $r = 0.562$; $n=201$). The result is significant at $p < 0.05$. Figure 3 shows the graphed correlation and line of best fit.

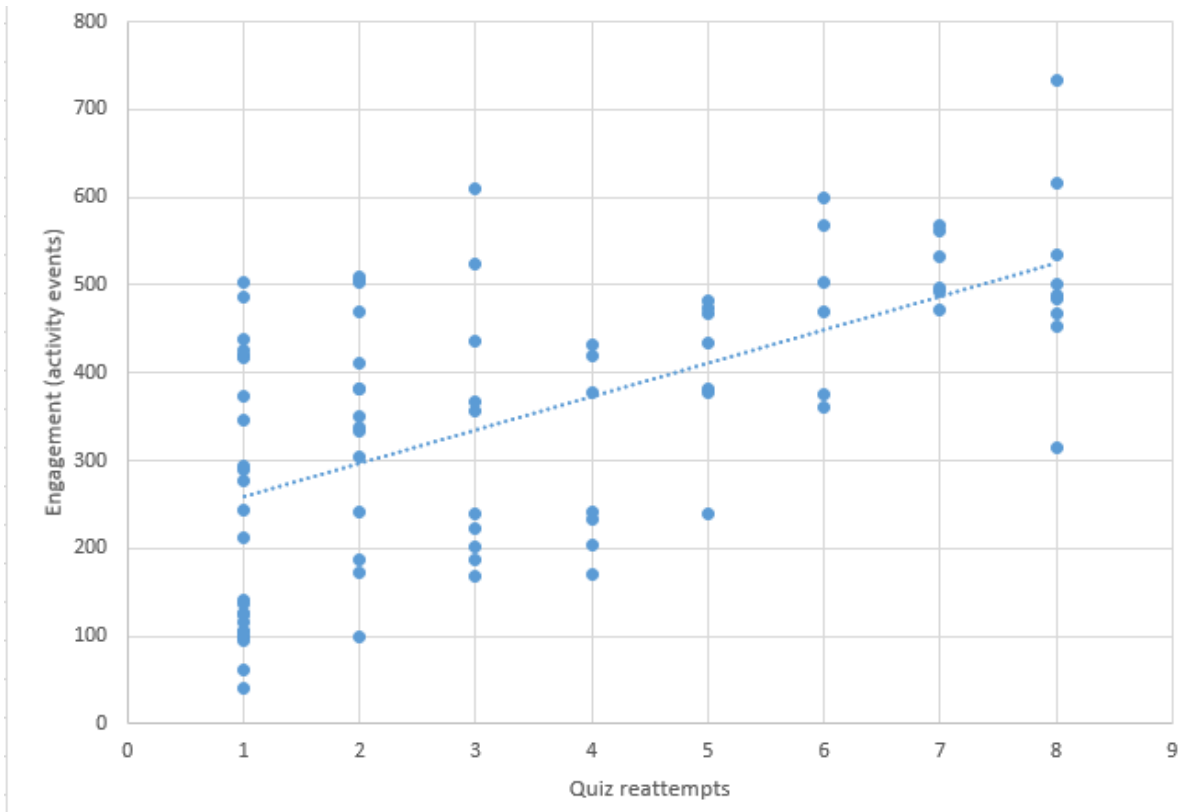


Figure 3: Scatterplot of correlation between engagement and quiz reattempts

iii. *What do students think of the Toolkit?*

There were 52 respondents to the online survey, representing 16% of all students who accessed the Toolkit units from April through August 2017. The age groups and gender of the respondents are shown in Figures 4 and 5 respectively.

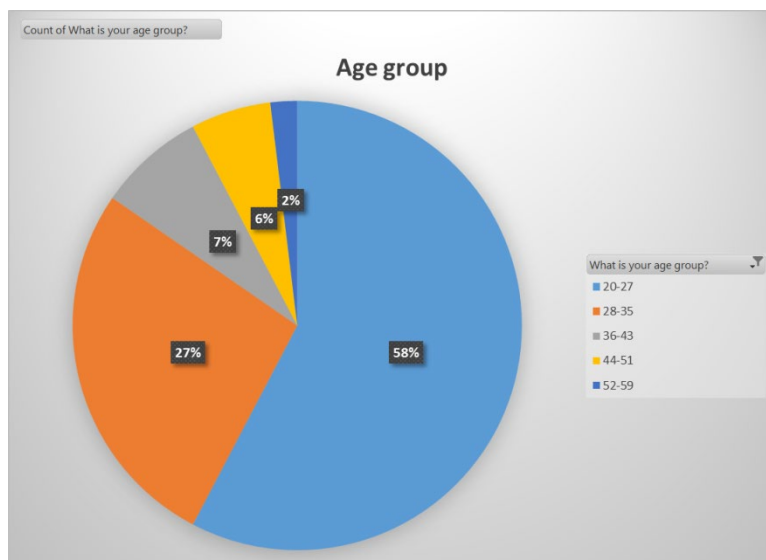


Figure 4: Respondents by age group

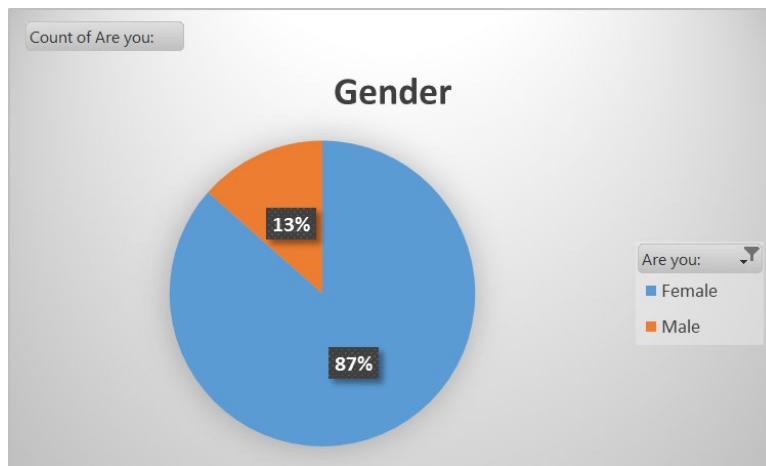


Figure 5: Respondents by gender

Analysis of free-text responses on the Toolkit's usefulness shows a number of predominating themes, which are graphed in the bar chart below (Fig. 6). By a substantial margin, referencing was cited as being the most useful aspect of the Toolkit, with reflective writing coming second in terms of frequency of mentions. This suggests a level of unfamiliarity with reflective writing among students; the fact that more than half of all responses that mentioned reflective writing as being useful also mentioned referencing (Fig. 7, below) suggests that both are perceived as areas in which similar levels of support are required. Grammar and assessment writing were also identified as useful. Interestingly, those who completed this question tended to adhere to unit topics rather than comment on aspects of the Toolkit such as mode of content delivery. The only exception to this was two mentions of the video content of the Toolkit as being useful.

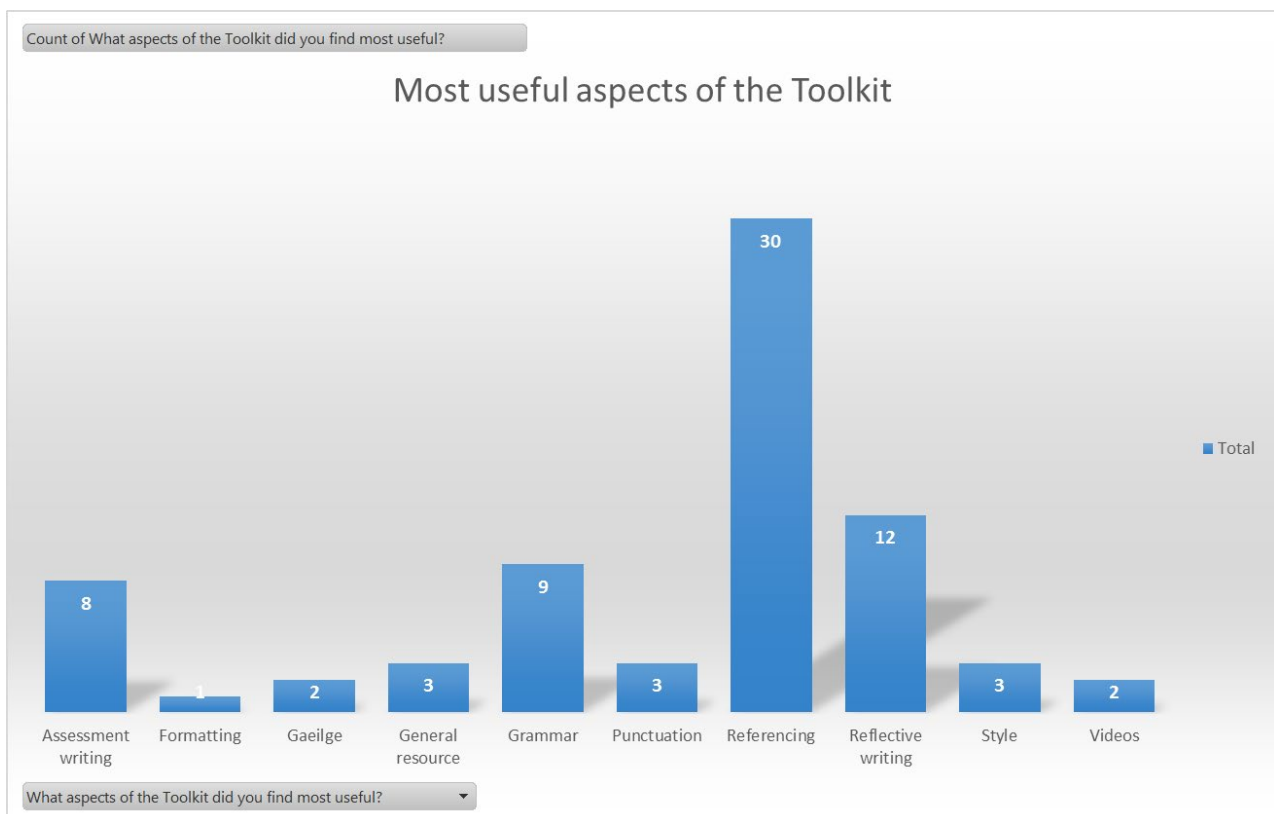


Figure 6: Most useful aspects of the Toolkit as expressed in free-text responses

What aspects of the Toolkit did you find most useful?
Referencing, reflective writing, Scriobh as Gaeilge
Referencing and Reflective Writing
Referencing section and reflective writing
Referencing, reflective writing and assessment writing
The section on reflective writing and the refresher on referencing
I found the referencing and reflective writing very helpful
referencing and reflective writing

Figure 7: Comments mentioning both referencing and reflective writing as useful

Analysis of free-text responses on suggestions for improvement are graphed in the bar chart below (Fig. 8). The most frequently mentioned area for improvement was the volume of content covered in the Toolkit, which some students felt should be reduced. One student said that it was "slightly overwhelming trying to cover all these areas in very first 2 weeks of course"; other students suggested fewer exercises as a way of reducing the time needed to complete the Toolkit. Another student found the Toolkit "very time consuming" to complete but added that "there is not much information that you could cut out". Some comments focused on modes of content delivery, suggesting more videos and podcasts and the inclusion of webinars, tutorials and forums. This would appear to indicate that students place a high value on teaching presence in the area of academic writing instruction, as they do in other aspects of their programmes. Eight respondents commented that they felt no improvements were necessary and that they were fully satisfied with the Toolkit as it is (Fig. 9).

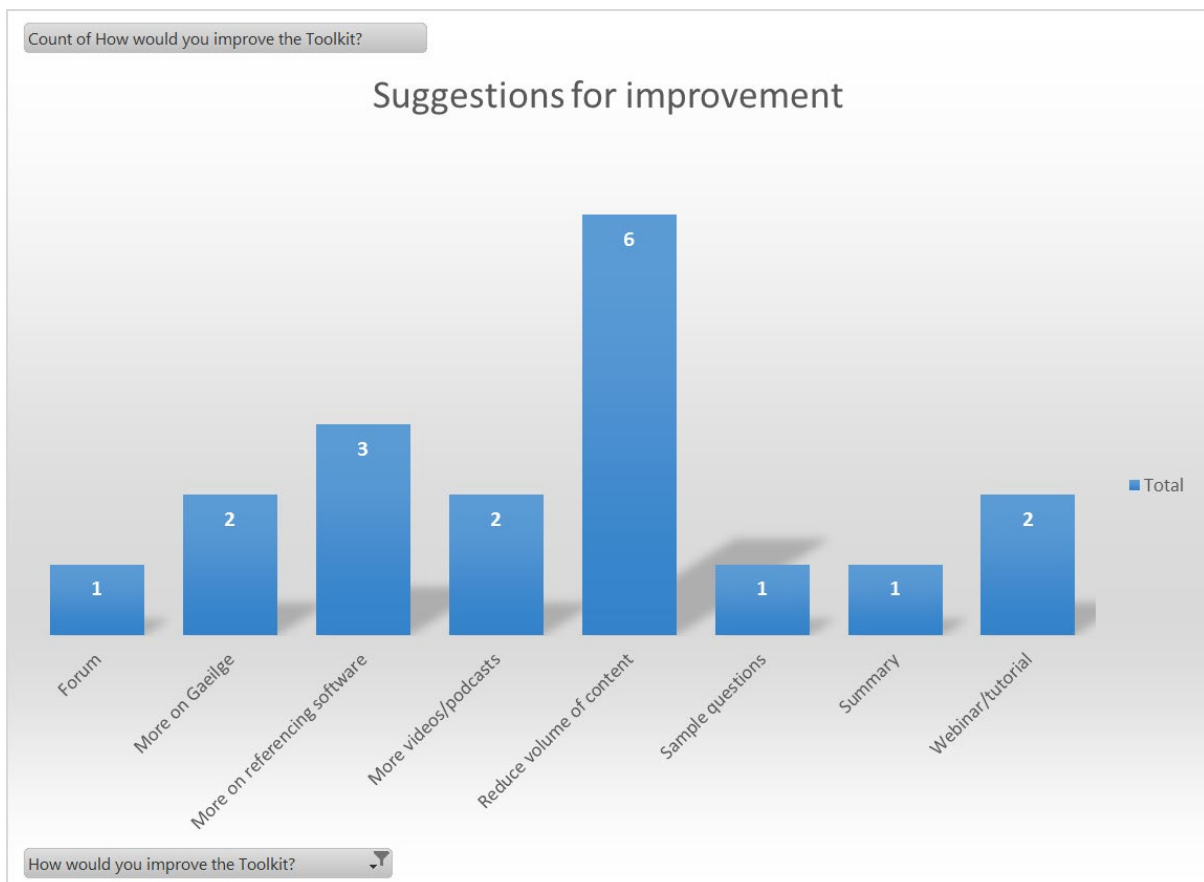


Figure 8: Suggestions for improvement of the Toolkit as expressed in free-text responses

How would you improve the Toolkit?
I would not improve anything. It was very helpful.
Cannot see any problems
I think it was really useful.
Nothing. very informative and very well laid out.
NA
I found it very helpful and interesting.
I think it is effective as is. I appreciated it greatly, thanks.
I think ye've thought of everything!

Figure 9: Comments indicating full satisfaction with the Toolkit

4. Discussion

Interpreting learning analytics may be viewed as an art as well as a science; as a discipline still in its infancy, there is a growing need for reliable frameworks for interpretation as the body of research grows. In using learning analytics, it is necessary to acknowledge its limitations and recognise what the data cannot capture. Among the key limitations of this study is the short period of time it covers, meaning that meaningful longitudinal data analysis was not possible. This limited the study's ability to draw firm conclusions about the first research question concerning students' revisiting of the Toolkit as a resource over time. Within the parameters of the available data, however, it seemed clear that the Toolkit was not being used in the manner envisaged. This provided a body of evidence, albeit partial, from which to examine what might be producing this outcome. In addressing the second research question on the relationship between the incidence of students re-taking quizzes and the level of engagement more generally, one interpretation of the evidence suggests that students who engage more with online content may be more likely to use the quizzes in way they're intended – as formative tools for learning rather than as summative tests. While more research is needed in order to establish the direction of this relationship, it establishes a link between the two areas, offers a useful proxy measurement for student engagement and, crucially, contributes towards the evidence base for enhancement of online engagement through learning design.

The survey responses suggest that students' experience of the Toolkit has been positive, with the majority of comments expressing positive opinions about coverage and quality. Nonetheless, it is possible to discern from the data some areas for improvement and future inquiry. One enhancement that would respond directly to student feedback is the repurposing of some of the Toolkit content (where possible) in formats such as video and audio, to enhance teaching presence and a sense of a community of inquiry. Tutorials and forums were also mentioned as possible improvements, although the nature of the Toolkit's temporal use would make these difficult to implement. A more explicit connection between the Toolkit and the other academic writing supports (modules, webinars and forums) could be drawn to highlight the breadth of support available and the Toolkit's role in this. Many survey respondents expressed a feeling of being overwhelmed by the volume of content, and this may have been exacerbated by the requirement to complete the Toolkit in two weeks during the orientation, when they were already absorbing a lot of information. This raises the question of how the Toolkit should be 'promoted' to students and whether it should or should not form part of the initial orientation in future cohorts. A more sustained approach whereby faculty and student-facing staff take a proactive role in guiding students towards the Toolkit at key points throughout the programme might be more beneficial. It is, however, important to recognise and plan for the eventuality that, as their programme progresses, students' workload will increase and pragmatic decisions regarding time spent on non-compulsory content will come into play.

Potential research beyond the scope of this study could use learning analytics to examine in more detail students' time on task and ascertain the accuracy of the completion time estimates provided with each task and unit in the Toolkit. Because the survey was anonymous and user data was anonymised, it was not possible to correlate individual student logs to survey responses. If such analysis were possible, it could yield interesting findings about the alignment of students' perceptions of the Toolkit and their online learning behaviours. It would be useful to continue to look at analytics data longitudinally to assess whether the Toolkit is, as envisaged, a resource that students return to for help throughout their programme. Of course, the ultimate aim of the Toolkit from the beginning has been to improve students' academic writing, and research should eventually be carried out, in collaboration with the programme teams, to examine whether and to what extent use of the Toolkit has impacted the quality of the writing and research produced by the students.

5. Conclusions

This study aimed to answer three research questions relating to student engagement with and experience of the Academic Writing Toolkit: whether the engagement observed in the first five months indicate that students might return to the Toolkit over time; whether there is a relationship between quiz re-attempts and overall Toolkit engagement; and what students' experience of using the Toolkit was. Patterns of engagement suggest that there was a fall-off in engagement with the Toolkit following the first two weeks, with minor resurgences of engagement at points where assignment submissions were due in other modules. The study found a moderate correlation between quiz re-attempts and overall Toolkit engagement, suggesting that students who use quizzes formatively are likely also to be more engaged online. However, this is not a straightforward causal relationship. Surveyed students' experience of the Toolkit was generally positive, with proposals for improvement falling under two categories: more teaching presence, and more regard for the scheduling needs of distance-learning students.

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